

Amendments to the Claims

US Patent Application
No. 09/980,884 of
Matthew J. Baker for
"Sample Processing Device"

1. (currently amended) A method for extracting nucleic acid from a liquid mixture containing nucleic acid, the method ~~employing (a)~~ comprising providing a container having a first and second end and containing comprising a solid phase capable of binding nucleic acid and a reversible suction means connected to one of said ends; and (b) operating said reversible suction means for drawing to draw the liquid mixture through over the solid phase in one direction and forcing the liquid mixture over the solid phase in the reverse direction, the method comprising reversibly drawing the liquid mixture over the solid phases so that nucleic acid in the sample binds to the solid phase.
2. (original) The method of claim 1, wherein the nucleic acid is DNA or RNA, or a mixture of both.
3. (previously amended) The method of claim 1, wherein the container has a volume less than or equal to 100 ml.
4. (previously amended) The method of claim 1, further comprising the step of expelling the liquid mixture from the container after extraction of nucleic acids.

5. (previously amended) The method of claim 1, further comprising washing the solid phase to remove bound materials other than nucleic acid.
6. (previously amended) The method of claim 1, further comprising removing the nucleic acids from the solid phase by eluting with a solvent.
7. (previously amended) The method of claim 1, further comprising reversibly drawing a second liquid mixture over the solid phase so that nucleic acid in the second liquid mixture binds to the solid phase.
8. (previously amended) The method of claim 1, further comprising homogenising the liquid mixture prior to drawing the liquid mixture over the solid phase.
9. (previously amended) The method of claim 1, wherein the reversible suction means is a syringe.
10. (previously amended) The method of claim 1, wherein the container is a disposable cartridge.
11. (previously amended) The method of claim 1, wherein a syringe is the container and reversible suction means and the solid phase is contained in the barrel of the syringe.
12. (previously amended) The method of claim 1, wherein the container is a pipette and the solid phase is located in the tip of the pipette.
13. (previously amended) The method of claim 1, wherein the container is an extraction cartridge.

14. (previously amended) The method of claim 1, wherein the solid phase can move inside the container.
15. (previously amended) The method of claim 1, wherein the container and reversible suction means are releasably connected.
16. (previously amended) The method of claim 1, wherein the solid phase comprises porous or non-porous beads.
17. (original) The method of claim 16, wherein the solid phase comprises beads of polymeric material having surface groups which are pyrazole, pyrrole, pyrrolidine, indole, purinimidne, nucleic acid bases, imidazole, imeines, amines, lysines or a group having a pKa in the range of 3 to 12.
18. (previously amended) The method of claim 16, wherein the beads are derivatised so that they are capable of selectively binding nucleic acid.
19. (previously amended) The method of claim 16, wherein the beads are retained in the container by a frit, porous membrane or mesh.
20. (original) The method of claim 19, wherein the frit, porous membrane or mesh has a pore diameter of at least 0.1 mm.
21. (previously amended) The method of claim 1, wherein the container has an inner surface having ridges or spirals to cause mixing between liquid mixture and solid phase.

22. (previously amended) The method of claim 1, wherein the solid phase comprises one or more spaced apart discs or membranes, each having holes with a diameter of at least 0.1mm, or cut away sections.
23. (previously amended) The method of claim 1, wherein a by-pass channel runs through the solid phase.
24. (previously amended) The method of claim 1, wherein the solid phase has a pore size of greater than 0.1mm.
25. (original) A method for extracting nucleic acid from a liquid mixture containing nucleic acid, the method employing (a) a container comprising an electrode capable of binding nucleic acid and (b) reversible suction means for drawing the liquid mixture over the solid phase, the method comprising reversibly drawing the liquid mixture over the electrode so that nucleic acid in the sample binds to the electrode surface.
26. (currently amended) An extraction device for extracting nucleic acid from a liquid mixture containing nucleic acid, the device comprising (a) a container having first and second ends and containing a solid phase capable of binding nucleic acid and (b) reversible suction means which is connected to one of said ends and operates to draw the liquid mixture through said solid phase in one direction and force said liquid through said solid phase in the reverse direction, thereby causing said liquid mixture to

~~pass up and down through said solid phase for drawing the liquid mixture over the solid phase.~~

27. (original) The extraction device fo claim 26, wherein the container has a volume less than or equal to 100 ml and the solid phase is located within the barrel of the syringe.
28. (original) The extraction device of claim 27, wherein the reversible suction means is a syringe and the solid phase is located in a cartridge releasably connected to the nozzle of the syringe.
29. (original) The extraction device of claim 27, wherein the container is a pipette and the solid phase is located within the tip of the pipette.
30. (original) The extraction device of claim 29, wherein an aerosol plug is located in the body of the pipette.
31. (original) An extraction device for simultaneously extracting nucleic acids from two or more liquid mixtures containing nucleic acids, comprising (a) two or more containers each containing a solid phase capable of binding nucleic acid and (b) reversible suction means which may be applied simultaneously to each container to reversibly draw a liquid mixture over the solid phase.
32. (previously added) The method of claim 8, further comprising homogenising the liquid mixture prior to drawing the liquid mixture over the solid phase.